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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,921	05/10/2001	Philipp Steinmann	TI-29881	5844

23494 7590 06/13/2002

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EXAMINER

DEO, DUY VU

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 06/13/2002

3

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-3

Office Action Summary

Application No.

09/852,921

Applicant(s)

STEINMANN ET AL.

Examiner

DuyVu n Deo

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 14-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 14-16 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishii (US 5,422,307).

Ishii describes a fabrication method for an integrated circuit comprising: forming an interlevel dielectric 211 over a substrate; forming a layer of resistor material 212 over the dielectric layer; forming a metal stack, 213 and 214, on the resistor material; forming a first pattern over the metal stack; etching the metal stack and resistor material using the first pattern; forming a second pattern to expose a portion of the metal stack over the thin film resistor; removing the exposed portion of the metal stack to form a thin film resistor (col. 9, line 56-col. 10, line 59). Even though Ishii is silent about removing the first pattern, it would be obvious to remove the first pattern so that second pattern can be applied on the substrate for etching. Figures 14B-C shows the first pattern is removed.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii as applied to claim 1 above, and further in view of Morris (US 5,485,138).

Unlike claimed invention, Ishii is silent about the dielectric layer having vias formed at the surface thereof. However, it is well known to one skill in the art as shown here by Morris to form vias in the dielectric layer so that the resistor can be interconnect to other parts of the integrated circuit.

5. Claims 8-10, 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii, Linn, and Morris.

Unlike claimed invention, Ishii doesn't describe removing the exposed portion of the metal stack using wet etch. However, wet etch is well known to one skill in the art for etching metal above resistor material as shown here by Linn (col. 3, line 65-col. 4, line 4) as long as the metal is etched without affect the resistor material as taught by Linn with an expected result.

The step of forming a second interlevel dielectric layer over the metal lines ad thin film resistor would be obvious as shown by Morris (col. 4, line 13-20) in order to protect the resistor from the subsequent process.

Ishii is silent about the dielectric layer having vias formed at the surface thereof. However, it is well known to one skill in the art as shown here by Morris to form vias in the dielectric layer so that the resistor can be interconnect to other parts of the integrated circuit.

6. Claims 4, 5, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii or Ishhi/Linn/Morris as applied to claims 1 and 8 above, and further in view of admitted prior art.

Referring to claims 4, 5, and 11 using a hardmask, such as silicon dioxide or other, to etch the metal stack is well known to one skilled in the art as long as it can provide a pattern for etching with an expected result as described in page 7, line 25-30.

Election/Restrictions

7. Restriction to one of the following inventions is required under 35 U.S.C. 121:
- I. Claims 1-13, drawn to a method, classified in class 438, subclass 384.
 - II. Claims 14-16, drawn to a product, classified in class 257, subclass 499.

The inventions are distinct, each from the other because of the following reasons:

8. Inventions in group I and group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as a method doesn't have the first step of etching the metal stack and resistor using the first pattern, and the product can be form with a layer of metal, not a metal stack.
9. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
10. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

11. During a telephone conversation with Jacqueline Garner on 5/16/02 a provisional election was made with traverse to prosecute the invention of method, claims 1-13. Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-16 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

12. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n Deo whose telephone number is 703-305-0515.

DVD
June 11, 2002


ROBERT KUNEMUND
PRIMARY EXAMINER